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EXAMINER

UHLIR, NIKOLAS J

ART UNIT	PAPER NUMBER
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1773

DATE MAILED: 03/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/939,804

Applicant(s)

TERASE ET AL. *eb*

Examiner

Nikolas J. Uhlir

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 February 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3,5,8 and 11-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3,5,8 and 11-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 02/17/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. This office action is in response to the amendment/arguments dated 2/17/2004. Currently, claims 3, 5, 8, and 11-27 are pending. Applicant's arguments with respect to the structure of the scaly silica particles are persuasive in overcoming the previous rejection of claim 3, 5, 8, 10, 13, 15, 18, 20, 23, 25, and 26. The application is not in condition for allowance in view of the new double patenting rejection, the new 112 second paragraph, the new 35 U.S.C 102(b) rejection, and the 35 U.S.C 103(a) rejection presented below. The finality of the previous office action has been withdrawn.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 14 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 14 recites the limitation "the foliar silica secondary particles" in lines 1-2 of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 11 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Zdanowski (US3808036).
6. Claims 11 requires a floor polishing coating comprising a film forming resin and scaly particles. Zdanowski teaches a floor polishing composition that comprises a resin, wherein the composition can include a coloring agent such as aluminum flakes (see column 1, lines 35-50 and column 5, lines 25-40). Zdanowski teaches applying the composition to a floor (see examples). Thus, claim 11 is met. The method utilized by the examples also clearly anticipates the method of claim 21.

Claim Rejections - 35 USC § 103

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
8. Claims 11-12, 14, 21-22, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zdanowski et al. (US3900438) in view of Terasse et al. (US6077341).
9. Claims 11, 12, and 14 require a floor polishing film comprising a film formable organic resin and scaly particles (claim 11), specifically scaly particles corresponding to layered polysilicic acid (claim 12), more specifically layered polysilicic acid particles having the X-ray diffraction peaks of silica X and/or Silica Y (claim 14).
10. Regarding these limitations, Zdanowski et al. teaches a coating composition that produces a glossy bright coating with or without polishing on surfaces of wood, linoleum, metals, asphalt tile, and concrete, especially on floors (column 1, lines 7-11). This coating composition comprises 50-95 parts by weight of a copolymer (equivalent to applicants claimed film forming resin), 5-50 parts by weight of a wax, 0-30 parts by

weight of an alkali soluble resin, a wetting or dispersing agent, and water (column 7, lines 1-10). Any monomer containing an amine group is suitable for use as the first monomer in the copolymer composition (column 2, lines 14-20). The second monomer in the copolymer is a hardening monomer such as styrene, vinyl chloride, acrylonitrile, or methyl methacrylate (column 4, lines 1-12). The coating composition is adapted to form clear glossy coatings, but may also contain pigments or fillers. These pigments and fillers include, silicates and metal oxides, such as titanium dioxide (column 5, lines 35-47). The amount of filler is between 2-100% by weight based on the weight of the binder resin (column 5, lines 49-55). Zdanowski et al. teaches that a coating of this composition on linoleum, vinyl, and asphalt floor tile surfaces exhibited rapid drying, and excellent gloss and wear resistance (column 8, lines 45-51).

11. Zdanowski et al. does not teach a floor polishing film comprising scaly particles, wherein the scaly particles correspond to layered polysilicic acid, more specifically layered polysilicic acid particles having the x-ray diffraction peaks of Silica X and/or Silica Y, as required by claims 11-1 and 14.

12. However, Terasse et al. teaches a silica metal oxide composite, wherein metal oxide particulates are supported on the surface of silica agglomerates composed of scaly silica (column 1, lines 6-13). The silica agglomerates form as a result of random stacking of scaly silica primary particles (column 4, lines 6-10). Terasse et al. defines scaly as being in the shape of a thin plate, which may be partially or entirely bent or curled. Terasse et al. teaches that scaly silica particles that agglomerate by stacking are known from academic research as silica-X or Silica-Y (column 4, lines 36-43). Terasse et

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al. teaches a method for making Silica-X, wherein a silica hydrogel is heated in an autoclave to carry out hydrothermal treatment, resulting in the formation of silica agglomerates in which scaly silica primary particles are randomly stacked (column 7, lines 38-42). In the hydrothermal treatment, an alkali metal salt such as sodium, lithium or potassium silicate is permitted to coexist with the silica hydrogel, under basic (pH greater than 7) conditions. This mixture is heated at a temperature between 150-220⁰C for 5-50 hours (column 7, line 47-column 8, line 40). The silica agglomerates obtained are randomly stacked, and exhibit surface-surface (equivalent to applicants claimed face to face in parallel), surface-edge, and edge-edge stacking (column 10, lines 18-28). Given the fact that the particles of Terasse are scaly silica particles having that exhibit face to face in parallel alignment, and given the fact that the particles of Terasse are called Silica X and Silica Y, which is the same name given to the particles by the applicant on page 23, lines 10-25 of the instant specification, it is the position of the examiner that the silica particles of Terasse are equivalent to applicants claimed silica particles. Terasse teaches adding these particles to cosmetics, coatings, or resins. Suitable resins to which the silica-metal oxide composite may be added include urethane resins, vinyl chloride resins, and amino resins (column 14, line 1-3-6). When these particles are treated with a coupling agent and incorporated into a resin, Terasse et al. teaches that the strength of the resin is improved (column 14, lines 8-18).

13. Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to add the coupling agent treated silica-metal oxide

composite material taught by Terasse et al. to the floor polishing composition as taught by Zdanowski et al.

14. One would have been motivated to make this modification due to the teaching in Terasse et al. that coupling agent treated silica-metal oxide composite particulates increase the strength of resins to which they are added. Further, one would have been motivated to make this modification due to the teaching in Terasse et al. that the composite particulate may be added to resins such as vinyl-chloride and amino resins, and the teaching in Zdanowski et al. that the floor polishing composition comprises a copolymer of an amine group containing monomer and another monomer such as styrene or vinyl chloride.

15. Regarding claims 21-22 and 24. These claims merely require a generic method for treating a floor with a coating having the same requirements as claims 11-12 and 14. These limitations are met as set forth above for claims 11-12 and 14.

16. Claims 16-17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zdanowski as modified by Terasse as set forth above for claims 11-12 and 14, and further in view of Hackett (US4363935).

17. Zdanowski et al. as modified by Terasse et al., does not teach coating the a floor polishing coating comprising an organic high molecular material and foliar silica particles that are stacked face to face in parallel with one another with an overcoating layer comprising an organic resin material as required by claims 16-19.

18. However, with respect to this deficiency, Hackett et al. teaches a treatment for polished and unpolished floor surfaces. The treatment comprises spray-buffing a

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specially formulated compound containing a crosslinking agent onto an in service film (column 1, lines 18-25). Typically, the in service film is a conventional polished finish such as a polymeric finish or a floor wax. The specially formulated solution contains an ingredient that enables the composition to crosslink with the floor surface through oxygen group bridging. This results in a tough film that is crosslinked with the floor surface. (column 2, lines 10-40). The specially formulated solution consists of an aqueous emulsion of an acrylic, styrene acrylic, vinyl acetate acrylic polymer, a water soluble solvent, a non-ionic surfactant, a volatile amine, a humectant, a crosslinking agent such as methylated melamine or sodium benzoate, ammonia, water, and optionally an anionic or nonionic wax or polyolefin emulsion (column 45-68). Although Hackett et al. does not teach that the resilient layer is an organic high molecular compound, the aqueous polymer emulsion taught by Hackett et al. matches the materials specified by the applicant on page 9 of the specification as suitable organic high molecular compounds. Thus, this limitation is met. Hackett et al. teaches that floor surfaces coated with this composition exhibit improved detergent and water resistance, improved powdering resistance, improved heel mark resistance, and improved overall gloss (column 1, lines 44-50).

19. Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to coat a floor polished with the composition taught by Zdanowski et al. as modified by Terasse et al. with the floor treatment composition taught by Hackett et al.

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20. One would have been motivated to make this modification due to the teaching in Hackett et al. that polished floors treated with the floor treatment composition exhibit an increase in detergent resistance, water resistance, powdering resistance, heel mark resistance, and gloss.

Obviousness Type Double Patenting

21. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

22. Claims 3, 5, 11-15, and 21-27 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-18 of U.S.

Patent No. 6534176 in view of Terase (US6077341) and Zdanowski et al. (US3900438).

23. In the instant case, claim 3 requires a floor polishing composition comprising a film-formable organic resin material as the main component, scaly particles of silica corresponding to layered polysilicic acid, wherein said layered polysilicic acid has a layered particle structures that are present independently from each other, wherein said layered polysilicic acid comprises foliar silica secondary particles that are present discretely from each other, wherein a plurality of flaky primary particles of scaly silica

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are overlaid one on another and aligned face to face in parallel with one another, and wherein the foliar silica secondary particles are obtained by disintegrating an aqueous slurry of tertiary agglomerated particles of silica by means of a mechanical high speed stirring system employing a disintegrating medium.

24. Bearing the limitations of claim 3 in mind, the claim 7 of US6534176 claims a hardenable composition, comprising, scaly silica particles having a laminated structure, consisting essentially of secondary particles of foliar silica; and a volatile liquid; wherein each of said secondary particles is formed by a plurality of primary particles of scaly silica which are overlaid one on another and aligned face to face in parallel with one another; and wherein the secondary particles are present independent from one another; and an organic polymer substance (claim 7). It is the examiners position that the organic polymer substance of claim 7 of US6534176 is equivalent to applicants claimed film-formable organic resin material.

25. Regarding the method of making the silica particles required by the instant claim 3, Claim 18 of US6534176 discloses a method for producing scaly silica particles that meets all of applicants claimed method steps. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the method of claim 18 of US6534176 to make the silica particles of claim 7 of US6534176 in view of the fact that claim 7 expressly claims "hardenable composition" containing "scaly silica particles" and claim 18 is expressly "a process for producing scaly silica particles suitable for a hardenable composition."

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26. Regarding the requirement that the scaly silica particles correspond to layered polysilicic acid though this limitation is not expressly claimed claim 4 of US6534176 does claim that the scaly silica particles have the x-ray diffraction peaks corresponding to Silica X and Silica Y, which are known to correspond to layered polysilicic acid. It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the scaly silica particles of claim 4 of US6534176 as the scaly silica particles utilized in claim 7 of US6534176, as the specific type of silica particles utilized in the hardenable composition of claim 7 of US6534176 have identical properties to the silica particles disclosed by claim 4 of US6534176.

27. Regarding the requirement that the coating composition be a floor polishing composition, as required by claims 3, 5, and 8. As the hardenable composition set forth by the claims of US6534176 meets all of the compositional limitations of the instant claims, the hardenable composition of US6534176 is equivalent to applicants claimed floor polishing composition.

28. While US6534176 does not claim that the resin material is the main component of the composition, the formation of such a solution would have been obvious to one of ordinary skill in the art at the time the invention was made. As shown by Terasse, silica particles that are precursors to the particles claimed by US6534176 are useful as reinforcing fillers in resin binder. (See Terasse columns 4 and 7-9). Terasse teaches that when these particles are added to a resin such as a urethane, vinyl chloride, or amino resin (column 14, line 1-3-6), the strength of the resin is improved (column 14, lines 8-18).

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29. Bearing the above in mind, Zdanowski et al. teaches a coating composition that produces a glossy bright coating with or without polishing on flooring surfaces (column 1, lines 7-11). The main component of this coating composition is a copolymer resin, and the composition can contain fillers such as a silicate (column 7, lines 1-10; column 5, lines 49-55). Suitable copolymer resins are formed from a first monomer containing an amine group (column 2, lines 14-20), and a second monomer selected from styrene, vinyl chloride, acrylonitrile, or methyl methacrylate (column 4, lines 1-12). These compositions exhibits excellent gloss and wear resistance (column 8, lines 45-51).

30. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the copolymer binder taught by Zdanowski as the major component of the hardenable composition claimed by US6534176, as Terasse teaches that filler particles similar to those claimed by US6534176 are suitable as reinforcing fillers in the types of binders set forth by Zdanowski. One would have utilized the resin of Zdanowski as the major component because Zdanowski specifically teaches that the copolymer resin should be the bulk of the floor polishing composition. Thus, the limitations of claim 3 are met.

31. Claim 5 of the instant invention requires the scaly silica particles to have the main x-ray diffraction peaks corresponding to silica X and/Silica Y. This limitation is met as set forth above.

32. The limitations of claims 8 and 10 require the organic resin material of the floor polishing composition to be an organic resin material in an aqueous emulsions state. Zdanowski specifically teaches that the resin utilized in the floor polish is preferably

made by emulsion copolymerization, wherein an anionic or ionic dispersing agent is used to emulsify the monomers (column 4, lines 35-40). Thus, the limitations of claim 8 are met.

33. Claims 11 and 12 requires a floor polishing film comprising a film formable organic resin material and scaly particles. Claim 13 of US6534176 claims a hardened product formed on the surface of a substrate, wherein the hardened product contains an organic resin binder and scaly particles, such that the hardened product has a layered structure on the surface of the substrate.

34. As set forth above by Terasse, similar particles to those claimed by US6534176 are utilized as reinforcing agents in polymer binders. Further, as set forth by Zdanowski, floor-polishing compositions containing silicate fillers are known.

35. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the coating composition of US6534176 to form a floor polishing film, as Zdanowski expressly teaches that organic polymers containing fillers such as silicates are useful for this purpose and because Terasse teaches that similar particles to those claimed by US6534176 are suitable for use as a reinforcing agent in a polymer binder.

36. Claim 12 of the instant application requires the scaly particles utilized in claim 11 to correspond to layered polysilicic acid. Claim 13 does not expressly teach this limitation. However, the examiner maintains that it would have been obvious to utilize silica X or silica Y particles (which are known to correspond layered polysilicic acid) for the reasons set forth above at section 8 of this office action.

37. Claims 13-15 of the instant is met as set forth above for claims 11 and 12.

38. Claims 21-26 and 27 are met as set forth above.

39. Claims 16-20 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-18 of U.S. Patent No. 6534176 in view of Terasse and Zdanowski as set forth above for claims 11-15, and further in view of Hackett et al. (US4363935).

40. US6534176 in view of Terasse and Zdanowski does not teach coating the floor polishing film with an overcoating layer comprising an organic resin material as required by claims 16-20.

41. However, with respect to this deficiency, Hackett et al. teaches a treatment for polished and unpolished floor surfaces. The treatment comprises spray-buffing a specially formulated compound containing a crosslinking agent onto an in service film (column 1, lines 18-25). This composition crosslinks with the floor surface through oxygen group bridging. This results in a tough film that is crosslinked with the floor surface. (column 2, lines 10-40). The specially formulated solution consists of an aqueous emulsion of an acrylic, styrene acrylic, vinyl acetate acrylic polymer, a water soluble solvent, a non-ionic surfactant, a volatile amine, a humectant, a crosslinking agent such as methylated melamine or sodium benzoate, ammonia, water, and optionally an anionic or nonionic wax or polyolefin emulsion (column 45-68). The aqueous polymer emulsion taught by Hackett et al. matches the materials specified by the applicant on page 9 of the specification as suitable organic high molecular compounds. Hackett et al. teaches that floor surfaces coated with this composition

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exhibit improved detergent and water resistance, improved powdering resistance, improved heel mark resistance, and improved overall gloss (column 1, lines 44-50).

42. Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to coat a floor polished with the composition utilized by US6534176 as modified by Terasse and Zdanowski with the floor treatment composition taught by Hackett et al.

43. One would have been motivated to make this modification due to the teaching in Hackett et al. that polished floors treated with the floor treatment composition exhibit an increase in detergent resistance, water resistance, powdering resistance, heel mark resistance, and gloss.

Response to Arguments

44. Applicants arguments dated 2/17/2004 have been fully considered and are persuasive with respect to claims 3, 5, 8, 10, 13, 15, 18, 20, 23, 25, and 26 (all of these claims require the specific structure of the scaly silica particles). However, these claims are all rejected under the doctrine of obviousness type double patenting thus are not in condition for allowance. These claims would likely be allowable should the applicant timely file a terminal disclaimer over US patent 6534176 or if applicant amends the claims such that they are not obvious in view of the previous patent.

45. Regarding claims 11-12, 14, 16-17, 19, 21-22, and 24. Applicant's arguments with respect to these claims are not persuasive because the argument is not commensurate in scope with the claims. Specifically, these claims do not require the scaly particles to have any particular structure or composition, i.e. where the silica

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particles comprise primary particles of scaly silica overlaid face to face in parallel with one another and secondary foliar silica particles that are present discretely and independently from one another. Further, claims 11 and 21 are rejected under new art as anticipated under 35 U.S.C 102(b), and claim 14 is rejected under 35 U.S.C 112 second paragraph. Should applicant amend the claims to be commensurate in scope with their argument (i.e. by inserting the structure of the particles to these claims), and either file a terminal disclaimer over US6534176 or amend the claims such that they are not obvious in view of the previous patent, these claims would likely be allowable.

46. Should applicant wish to discuss the meaning of the examiners suggestions in this argument, the applicant is cordially invited to contact the examiner by phone.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nikolas J. Uhler whose telephone number is 571-272-1517. The examiner can normally be reached on Mon-Fri 7:30 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul J. Thibodeau can be reached on 571-272-1516. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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